

Having thus described the invention there is claimed as new and desired to be secured by Letters Patent:

1. An interocclusal sports prophylaxis comprising a core, the core including an arch shaped occlusal plate, maxillary buccal and lingual walls extending upwardly from the occlusal plate, a dentition encasement material covering the upper surface of the occlusal plate and inner faces of the maxillary buccal and lingual walls, the occlusal plate including a generally planar lower mandibular face, the selected zones being spaced from one another along the mandibular face, the dentition encasement material covering selected zones of the mandibular face, the dentition encasement material conforming to the shape of tooth surfaces after the prophylaxis is fitted and when the prophylaxis is worn, mandibular occlusal surfaces not registered with the selected zones being spaced from the mandibular face to provide free air oral breathing spaces when the prophylaxis is worn.

2. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein maxillary occlusal surfaces contact the occlusal plate when the prophylaxis is worn.

3. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the dentition encasement material is molded to the core.

4. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the mandibular face is generally planar except at the selected zones, the occlusal plate extending below the plane of the mandibular face at the selected zones.

5. An interocclusal sports prophylaxis as constructed in accordance with claim 4 wherein the occlusal plate extends below the plane of the mandibular face a distance in the order of at least one mm at the selected zones.

6. An interocclusal sports prophylaxis as constructed in accordance with claim 5 wherein one of the selected zones is an incisor zone and the occlusal plate extends below the plane of the mandibular face a distance in the order of two mm at the incisor zone.

7. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the core comprises a lattice having passages through the occlusal plate at the selected zones, the dentition encasement material covering the selected zones extending through the passages to the upper surface of the occlusal plate.

8. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the core comprises a resin which includes a thermoplastic polyurethane elastomer.

9. An interocclusal sports prophylaxis as constructed in accordance with claim 8 wherein the thermoplastic polyurethane elastomer is blended with a thermoplastic selected from the group consisting of ethylene vinyl acetate copolymer and ethylene methyl acrylate copolymer.

10. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the core comprises a resin having a Shore A hardness of at least 85 and a

Vicat softening temperature of at least 65°C and the dentition encasement material comprises a resin having a Shore A hardness below 80 and a Vicat softening temperature of approximately 36°C.

11. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein the free air oral breathing spaces comprise not less than 30 sq. mm.

12. An interocclusal sports prophylaxis as constructed in accordance with claim 1 wherein there are three selected zones, a pair of molar zones and one incisor zone and the minimum distance between the molar zones and the incisor zone is in the order of 1.5 cm.

13. An interocclusal sports prophylaxis as constructed in accordance with claim 8 wherein the resin comprises 90% by weight thermoplastic polyurethane elastomer and 10% by weight ethylene vinyl acetate copolymer.

14. An interocclusal sports prophylaxis as constructed in accordance with claim 8 wherein the resin comprises which includes 90% by weight thermoplastic polyurethane elastomer and 10% by weight ethylene methyl acrylate copolymer.

15. An interocclusal sports prophylaxis comprising a core, the core including an arch shaped occlusal plate, maxillary buccal and lingual walls extending upwardly from the periphery of the occlusal plate, a dentition encasement material covering the upper surface of the occlusal plate and inner faces of the maxillary buccal and lingual walls, the occlusal plate including a generally planar lower mandibular face, the core

including a labial force dispersal shield extending downwardly from a peripheral portion of the mandibular face to protect a user's mandibular structure against frontal blows during sporting activities, the mandibular face having a pair of molar zones in registration with mandibular molar teeth of the user, the core further including a pair of opposed framing braces, each framing brace extending downwardly from the periphery of the mandibular face at the molar zones to protect the user's mandibular structure against lateral blows encountered during sporting activities.

16. An interocclusal sports prophylaxis as constructed in accordance with claim 15 wherein the dentition encasement material covers the molar zones and an incisor zone of the mandibular face, the incisor zone being registered with the labial force dispersal shield.

17. An interocclusal sports prophylaxis as constructed in accordance with claim 15 wherein the core further includes an incisor zone, the incisor zone and the molar zones extending below the plane of the mandibular face, mandibular occlusal surfaces of the user contacting the molar zones and the incisor zone when the prophylaxis is worn, mandibular occlusal surfaces not registered with the zones being spaced from the mandibular face to provide a free air oral breathing space when the prophylaxis is worn.

18. A method of fabricating an interocclusal sports prophylaxis, the method including the steps of:

- a) providing a first thermoplastic resin,

- b) molding from the first thermoplastic resin, a core having an arch shaped occlusal plate and maxillary buccal and lingual walls extending upwardly from the plate, the buccal and lingual walls being dimensioned for substantial registration with a user's maxillary dentition, a labial force dispersal shield extending downwardly from the plate and a pair of spaced opposed molar framing braces extending downwardly from the plate at left and right molar zones of the plate, the force dispersal shield and the molar framing braces being dimensioned to overlie the user's incisor and molar teeth respectively,
- c) providing a dentition encasement material from a second thermoplastic resin having a Vicat softening temperature and a hardness lower than that of the first thermoplastic resin, and
- d) molding the dentition encasement material over selected areas of the core.

19. A method of providing an interocclusal sports prophylaxis in accordance with claim 18 wherein the first thermoplastic resin is provided by blending a thermoplastic polyurethane elastomer with a thermoplastic selected from the group consisting of ethylene vinyl acetate copolymer and ethylene methyl acetate copolymer.

20. A method of providing an interocclusal sports prophylaxis in accordance with claim 18 wherein the second thermoplastic resin comprises an ethylene vinyl acetate copolymer.